

State of California  
AIR RESOURCES BOARD

EXECUTIVE ORDER U-R-35-8  
Relating to Certification of New Off-Road Compression-Ignition Engines

MITSUBISHI HEAVY INDUSTRIES, LTD.

Pursuant to the authority vested in the Air Resources Board by Sections 43013, 43018, 43101, 43102, 43104 and 43105 of the Health and Safety Code; and

Pursuant to the authority vested in the undersigned by Sections 39515 and 39516 of the Health and Safety Code and Executive Order G-45-9;

IT IS ORDERED AND RESOLVED: That the following compression-ignition engine and emission control system produced by the manufacturer are certified as described below for use in off-road equipment:

Model Year: 2001

Typical Equipment Usage: Tractor, Dozer, Pump, Generator and Other Industrial Equipment

Fuel Type: Diesel

	Engine		
<u>Engine Family</u>	Displacement (liters)	Useful Life (hours)	Emission Control Systems and Special Features
1MVXL05.0AAB	3.3 and 5.0	8000	Direct Diesel Injection Turbocharger

Engine models and codes are listed on attachments. Production engines shall be in all material respects the same as those for which certification is granted.

The exhaust emission certification standards and certification values for hydrocarbons (HC), oxides of nitrogen (NOx), or non-methane hydrocarbons plus oxides of nitrogen (NMHC+NOx), carbon monoxide (CO), and particulate matter (PM) (units are expressed in grams per kilowatt-hour (g/kw-hr)), and the opacity-of-smoke certification standards and certification values in percent (%) during acceleration (Accel), lugging (Lug), and the peak value from either mode (Peak) for this engine family are as follows (Title 13, California Code of Regulations, Section 2423):

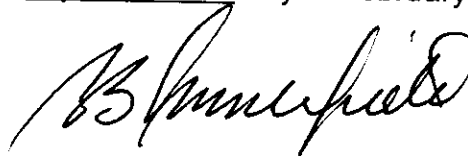
Engine Power Rating (kw)	Emission Standard Category		Exhaust Emissions (g/kw-hr)					Smoke Opacity (%)		
			HC	NOx	NMHC+NOx	CO	PM	Accel	Lug	Peak
37≤KW<130	Tier 1	Standard	N/A	9.2	N/A	N/A	N/A	20	15	50
		Certification	--	7.4	--	--	--	8	5	21

BE IT FURTHER RESOLVED: That the listed engine models also comply with "Emission Control Labels— 1996 and Later Off-Road Compression-Ignition Engines" (Title 13, California Code of Regulations, Section 2424) for the aforementioned model-year.

BE IT FURTHER RESOLVED: That for the listed engine models, the manufacturer has submitted the materials to demonstrate certification compliance with the Board's emission control system warranty provisions (Title 13, California Code of Regulations, Sections 2425 and 2426).

Engines certified under this Executive Order must conform to all applicable California emission regulations.

Executed at El Monte, California this 15<sup>th</sup> day of February 2001.

A handwritten signature in black ink, appearing to read "R. B. Summerfield", written over a horizontal line.

R. B. Summerfield, Chief  
Mobile Source Operations Division

ATTACHMENT

## Engine Model Summary Form

Manufacturer: Mitsubishi Heavy Industries, Ltd.

Engine category: Nonroad CI

EPA Engine Family: 1MVXL05.0AAB

Mfr Family Name:

Process Code: New Submission

U-R-35-8

1.Engine Code	2.Engine Model	3.BHP@RPM (SAE Gross)	4.Fuel Rate: mm/stroke @ peak HP (for diesel only)	5.Fuel Rate: (lbs/hr) @ peak HP (for diesels only)	6.Torque @ RPM (SEA Gross)	7.Fuel Rate: mm/stroke@peak torque	8.Fuel Rate: (lbs/hr)@peak torque	9.Emission Control Device Per SAE J1930
3046	3046	103hp@2100	53	37	298ftlb@1500	60	30	DDI, TC ↓
S6S-DT D5C	S6S-DT (Cat	99.0hp@2400	48	37	257ftlb@2400	54	26	
S6S-DT D5C	S6S-DT (Cat	99.0hp@2400	48	37	257ftlb@2400	54	26	
S6S-DT 939	S6S-DT (Cat	96.0hp@2400	47	36	262ftlb@1400	55	26	
S4S-DT-61TG	S4S-DT	77.0hp@2500	50	27	173ftlb@2500	57	20	
S6S-DT 317B	S6S-DT (Cat	112hp@2100	59	41	305ft-lb@1500	65	32	
S4S-DT-Y161D	S4S-DT	66hp@1800	58	23	205ftlb@1350	65	19	
S4S-DT-Y161D	S4S-DT	81.0hp@2500	54	30	194ftlb@1500	60	20	
S4S-DT61HS	S4S-DT	77hp@2200	56	27	195ftlb@1500	62	20	
S6S-Y1DT61D	S6S-DT	97hp@1800	59	35	293ftlb@1400	62	29	
S6S-Y1DT61D	S6S-DT	123hp@2500	55	45	300ftlb@1500	64	32	
S6S-DT318	S6S-DT	120hp@2200	61	44	325ftlb@1500	66	32	
S6S-DT315HC	S6S-DT	103hp@2100	53	37	298ftlb@1500	60	30	
S6S-DT318HC	S6S-DT	120hp@2200	59	43	325ftlb@1500	67	33	
S6S-DT315C	S6S-DT	115@2150	59	42	322ft-lb@1500	65	32	